SPEC ACCEL™ OMP Result

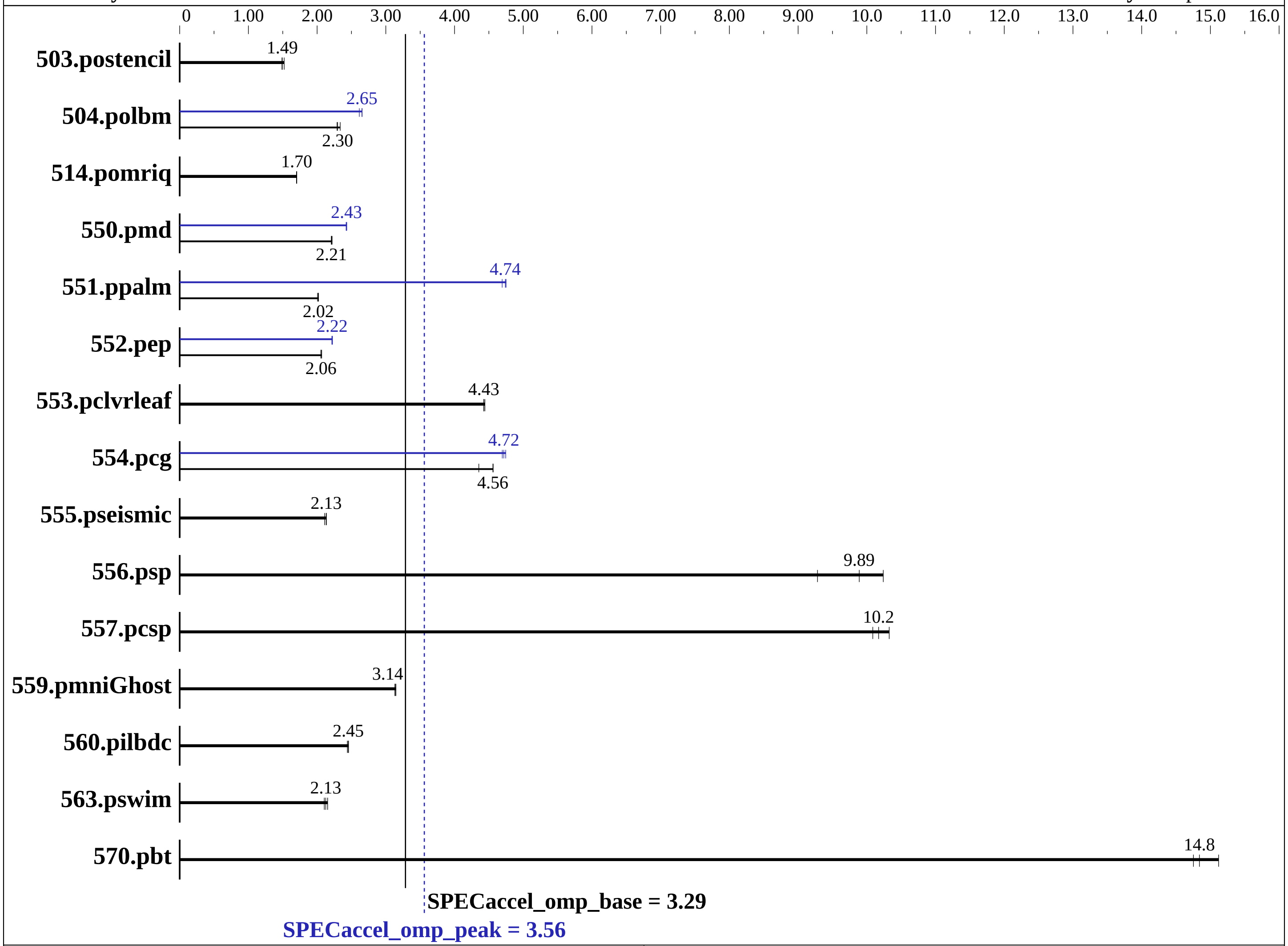
Intel
Intel Xeon E5-2697 v4

Endeavour Node(Intel Xeon E5-2697 v4, 2.3GHz, DDR4-2400 MHz, SMT ON, Turbo OFF)

SPECaccel_omp_peak = 3.56

SPECaccel_omp_base = 3.29

ACCEL license:	13	**Test date:**	May-2017
Test sponsor:	Intel	**Hardware Availability:**	Mar-2016
Tested by:	Intel	**Software Availability:**	Apr-2017



Hardware

CPU Name:	Intel Xeon E5-2697 v4
CPU Characteristics:	SMT is on, Turbo is off
CPU MHz:	2300
CPU MHz Maximum:	2300
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 Chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	45 MB I+D on chip per chip
Other Cache:	None

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Accelerator

Accel Model Name:	Intel Xeon E5-2697 v4
Accel Vendor:	Intel
Accel Name:	Intel Xeon E5-2697 v4
Type of Accel:	CPU
Accel Connection:	N/A
Does Accel Use ECC:	yes
Accel Description:	2x Intel Xeon E5-2697 v4 CPUs with Hyper-Threading
Accel Driver:	N/A

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Hardware (Continued)

Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400U-R)
Disk Subsystem: Panasas File System
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo) 3.10.0-514.6.2.0.1.el7.x86_64.knl1
Compiler: C/C++/Fortran: Version 17.0.3.191 of Intel Composer XE for Linux Build 20170404
File System: panfs
System State: Default
Other Software: FFTW 3.3.6

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	71.7	1.52	**73.0**	**1.49**	73.2	1.49	71.7	1.52	**73.0**	**1.49**	73.2	1.49
504.polbm	**53.1**	**2.30**	53.3	2.29	52.2	2.34	**46.0**	**2.65**	46.7	2.61	46.0	2.65
514.pomriq	365	1.70	364	1.70	**365**	**1.70**	365	1.70	364	1.70	**365**	**1.70**
550.pmd	109	2.22	**109**	**2.21**	109	2.21	99.1	2.43	99.5	2.42	**99.2**	**2.43**
551.ppalm	269	2.02	**270**	**2.02**	271	2.01	**115**	**4.74**	116	4.69	115	4.75
552.pep	112	2.05	**112**	**2.06**	112	2.07	104	2.22	104	2.21	**104**	**2.22**
553.pclvrleaf	258	4.44	259	4.42	**259**	**4.43**	258	4.44	259	4.42	**259**	**4.43**
554.pcg	76.5	4.35	**73.1**	**4.56**	73.0	4.56	70.9	4.69	**70.6**	**4.72**	70.2	4.74
555.pseismic	132	2.14	134	2.11	**132**	**2.13**	132	2.14	134	2.11	**132**	**2.13**
556.psp	79.9	10.2	**82.7**	**9.89**	88.1	9.28	79.9	10.2	**82.7**	**9.89**	88.1	9.28
557.pcsp	85.2	10.1	83.2	10.3	**84.4**	**10.2**	85.2	10.1	83.2	10.3	**84.4**	**10.2**
559.pmniGhost	126	3.15	**127**	**3.14**	127	3.13	126	3.15	**127**	**3.14**	127	3.13
560.pilbdc	266	2.46	**266**	**2.45**	268	2.44	266	2.46	**266**	**2.45**	268	2.44
563.pswim	73.8	2.15	**74.8**	**2.13**	75.6	2.10	73.8	2.15	**74.8**	**2.13**	75.6	2.10
570.pbt	51.6	15.1	**52.6**	**14.8**	52.9	14.8	51.6	15.1	**52.6**	**14.8**	52.9	14.8

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The config file option 'submit' was used.
submit = LD_PRELOAD=/opt/intel/compiler/2017u3/tbb/lib/intel64/gcc4.7/libtbbmalloc_proxy.so.2 $command
used Intel(R) TBB malloc
```

Platform Notes

```
Sysinfo program
/panfs/projects/innl/abobyr/SpecACCEL_OMP/kits/kit75_broadwell/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on ebwk01 Mon May 15 15:50:51 2017

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/accel/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2697 v4 @ 2.30GHz
      2 "physical id"s (chips)
      72 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       131915832 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   oracle-release: Oracle Linux Server release 7.3
   os-release:
      NAME="Oracle Linux Server"
      VERSION="7.3"
      ID="ol"
      VERSION_ID="7.3"
      PRETTY_NAME="Oracle Linux Server 7.3"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:oracle:linux:7:3:server"
      HOME_URL="https://linux.oracle.com/"
   redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
   ssf-release:
   SSF_VERSION=core-2016.0:hpc-cluster-2016.0:compat-base-2016.0:compat-hpc-2016.0
   system-release: Oracle Linux Server release 7.3
   system-release-cpe: cpe:/o:oracle:linux:7:3:server

uname -a:
   Linux ebwk01 3.10.0-514.6.2.0.1.el7.x86_64.knl1 #1 SMP Thu Mar 2 10:19:17 MST
   2017 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 15 12:34
```

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Platform Notes (Continued)

```
SPEC is set to: /panfs/projects/innl/abobyr/SpecACCEL_OMP/kits/kit75_broadwell
   Filesystem              Type   Size  Used Avail Use% Mounted on
   panfs://36.101.211.31/ panfs  251T   70T  182T  28% /global/panfs01
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.


(End of data from sysinfo program)
```

General Notes

```
Used Environment Variables:
  ENV_KMP_AFFINITY=compact,0 - assign OpenMP Threads continously
  ENV_OMP_NUM_THREADS=72 - limits number of Threads to be started to 72
  ENV_KMP_HW_SUBSET=2S,18C,2T - control Thread distribution accross sockets, cores and hw threads
  ENV_FORT_BUFFERED=true - enables buffered I/O for Fortran
```

Base Compiler Invocation

C benchmarks:
    icc

Fortran benchmarks:
    ifort

Benchmarks using both Fortran and C:
    icc ifort

Base Portability Flags

503.postencil: -DSPEC_USE_INNER_SIMD
504.polbm: -DSPEC_USE_INNER_SIMD
514.pomriq: -DSPEC_USE_INNER_SIMD
550.pmd: -DSPEC_USE_INNER_SIMD -80
551.ppalm: -DSPEC_USE_INNER_SIMD
552.pep: -DSPEC_USE_INNER_SIMD
553.pclvrleaf: -DSPEC_USE_INNER_SIMD
554.pcg: -DSPEC_USE_INNER_SIMD

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Base Portability Flags (Continued)

555.pseismic: -DSPEC_USE_INNER_SIMD
556.psp: -DSPEC_USE_INNER_SIMD
557.pcsp: -DSPEC_USE_INNER_SIMD
559.pmniGhost: -DSPEC_USE_INNER_SIMD -nofor-main
560.pilbdc: -DSPEC_USE_INNER_SIMD
563.pswim: -DSPEC_USE_INNER_SIMD
570.pbt: -DSPEC_USE_INNER_SIMD

Base Optimization Flags

C benchmarks:
-O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log,/

Fortran benchmarks:
-O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log,/

Benchmarks using both Fortran and C:
-O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host
-fimf-precision=low:sqrt,exp,log,/

Peak Compiler Invocation

C benchmarks:
icc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

Peak Portability Flags

503.postencil: -DSPEC_USE_INNER_SIMD
504.polbm: -DSPEC_USE_INNER_SIMD
514.pomriq: -DSPEC_USE_INNER_SIMD
550.pmd: -DSPEC_USE_INNER_SIMD -80
551.ppalm: -DSPEC_USE_INNER_SIMD -DSPEC_HOST_FFTW3
552.pep: -DSPEC_USE_INNER_SIMD

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Peak Portability Flags (Continued)

553.pclvrleaf: -DSPEC_USE_INNER_SIMD
554.pcg: -DSPEC_USE_INNER_SIMD
555.pseismic: -DSPEC_USE_INNER_SIMD
556.psp: -DSPEC_USE_INNER_SIMD
557.pcsp: -DSPEC_USE_INNER_SIMD
559.pmniGhost: -DSPEC_USE_INNER_SIMD -nofor-main
560.pilbdc: -DSPEC_USE_INNER_SIMD
563.pswim: -DSPEC_USE_INNER_SIMD
570.pbt: -DSPEC_USE_INNER_SIMD

Peak Optimization Flags

C benchmarks:

503.postencil: basepeak = yes

504.polbm: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host -fimf-precision=low:sqrt,exp,log,/

514.pomriq: basepeak = yes

552.pep: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host -fimf-precision=low:sqrt,exp,log,/ -qopt-streaming-stores always

554.pcg: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host -fimf-precision=low:sqrt,exp,log,/ -qopt-prefetch=5

557.pcsp: basepeak = yes

570.pbt: basepeak = yes

Fortran benchmarks:

550.pmd: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host -fimf-precision=low:sqrt,exp,log,/ -qopt-prefetch=2

551.ppalm: -O3 -xCORE-AVX2 -qopenmp -qopenmp-offload=host -fimf-precision=low:sqrt,exp,log,/ -I/home/abobyr/FFTW-3.3.6/include -L/home/abobyr/FFTW-3.3.6/lib

555.pseismic: basepeak = yes

556.psp: basepeak = yes

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Peak Optimization Flags (Continued)

560.pilbdc: `basepeak = yes`

563.pswim: `basepeak = yes`

Benchmarks using both Fortran and C:

553.pclvrleaf: `basepeak = yes`

559.pmniGhost: `basepeak = yes`

Peak Other Flags

Fortran benchmarks:

551.ppalm: `-lfftw3`

The flags file that was used to format this result can be browsed at
`https://www.spec.org/accel/flags/Intel-icc17.0-linux64.html`

You can also download the XML flags source by saving the following link:
`https://www.spec.org/accel/flags/Intel-icc17.0-linux64.xml`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC ACCEL v75.
Report generated on Wed Jun 21 17:15:13 2017 by SPEC ACCEL PS/PDF formatter v1290.
Originally published on 21 June 2017.